erence research information can be accessed. The textual patient record is accessed through a legacy database contains pointers to images on a network jukebox. Images can be adjusted for size, contrast, brightness, zoom, reverse image, and panning. The image server retains any accessed image for a year to ensure rapid access. ECG images are directly accessed from a commercial server (Marquette) containing tracings from 1982. The Cardiology database includes records of over 4,715 catherizations; 5,917 Holters; 48,335 ECGs; 14,649 Echocardiograms; 6,470 ETTs; and 1,144 EPs. Images include cardiology images such as echoes, coronary arteriograms, ventriculograms, MUGA, thallium studies, X-rays, ECG tracings, as well as non cardiology images such as pathology, GI and pulmonary endoscopy, gross operative and dermatological images.

Conclusions: The electronic patient record is available at over 450 locations throughout the hospital and can be used for automatic caseload, quality assurance reports and analysis using built in formats or standard statistical packages. The system runs either in a network as a stand alone system in a single users office.

1454 Computer Enhanced Imaging and Distributed Applications

Wednesday, April 1, 1998, 9:00 a.m.–Noon
Georgia World Congress Center, Booth 2300

9:00

1454-1 A DICOM Validator for Quality Control of DICOM Datasets on CD-R and Other Storage Media

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Background: More and more cardiology centres are moving towards cinefilmless digital cath labs. This development creates for the cardiology centres the need to use a standard format to exchange these images within the hospital and between centres. DICOM3 is the standard that is being used by all vendors. But how can the cardiologist be sure that DICOM 3 is being implemented the right way, how can proper Quality Control of DICOM implementations be performed?

Methods: A computer application, a DICOM validator, has been developed that can check the conformance of DICOM datasets to so called Application Profiles (AP's). An AP specifies exactly which data-elements have to be present in a DICOM dataset for a certain imaging modality. This DICOM Validator reports the number of different data elements present in a dataset, it reports the mandatory data elements that are missing and it also reports which data elements are present additionally, in excess to what is needed according to the AP. The validator is very flexible thanks to the underlying, easily adjustable, relational database that contains all essential information of the DICOM standard.

Experiences: This validator has been used over the past 2 years in the Netherlands and has proven to be an extremely useful tool to explore DICOM CD-R's that contained datasets that did happen to cause problems with DICOM viewing applications from other manufacturers. This validator and especially its very flexible reporting features turned out to be an invaluable help for tracking down many of the DICOM interfacing problems that happened to occur in the cardiology centres in the Netherlands over the past 2 years.

Conclusion: DICOM standard is complex and Quality Control of DICOM implementations is very much needed and can be facilitated by DICOM validator tools that make optimal use of relational database technology.

9:00

1454-2 Echocardiographic Machine Learning Databases on the Internet

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Data mining is an emerging artificial intelligence discipline intended to extract information from large amounts of data. As a result, large databases are being created on the Internet to train and test the performance of various machine learning methods. We used neural networks in our lab to study a large integrated backscatter (IBS) database and have made the data, results and technique available on the Internet. The IBS was obtained from the interventricular septum during dobutamine stress echo in 29 patients. Inductive decision trees have some advantages over neural networks. They can generate rules that instantly classify large amounts of clinical trial data. We employed this technique in the Studies of Left Ventricular Dysfunction (SOLVD) Registry to extract rules for echo-cardiographic left ventricular hypertrophy in 778 patients. This dataset is also available for use on the Internet. A large repository of machine learning databases already contains a post myocardial infarction echocardiographic database from another institution. Detailed descriptions and links to these echo-cardiographic databases are located at the following World Wide Web address: http://www2.umdnj.edu/~shindler/datamine.html